

## A magnetic bendable data-storage device

CSIC has developed a new magnetic recording device where information is cloaked, virtually unerasable and bendable. The device can store information as the magnetic band of a credit card or a barcode or even more advanced magnetic memories. Once written the information is unalterable and cloaked.

Industrial partners are being sought to collaborate through a patent license agreement.

### An offer for Patent Licensing

#### Antiferromagnetic bendable recording device

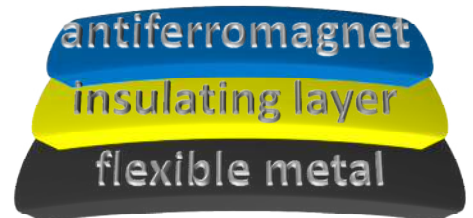
Development of functional material on flexible substrates is a fast growing activity due to potential applications in mobile and wearable IoT technologies.

Magnetic materials are well known as data storage media, as in magnetic random access memory elements (MRAMs) and hard disks (HD). These devices are based on a particular class of magnetic materials, called "ferromagnetic materials". Antiferromagnetic materials can store also magnetic information in a more robust manner and of relevance for some applications, it is cloaked. Antiferromagnetic-based data-storage elements have been proposed, but always on an unbendable substrate.

The present invention is an antiferromagnetic bendable recording device with an antiferromagnetic alloy as memory element that comprises:

- A flexible metallic material as a substrate capped with an electrical insulating layer
- A crystalline antiferromagnetic metallic alloy

At working temperature, the crystalline metallic alloy is in its antiferromagnetic state and the information is cloaked and robustly stored. The information is read electrically in a non-destructive manner.



(top) Scheme of the structure of the material.  
(bottom) picture of a piece of the material in one of its formulation

#### Main innovations and advantages

- For the first time an antiferromagnetic recording device is bendable.
- Data are cloaked in the AFM state.
- Different writing techniques can be used

#### Patent Status

European patent application filed suitable of international extension

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